EMERGENCY CASEBOOK

"Hitting the nail on the head"

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Subungual malignant melanoma is a rare form of malignancy that can present at an advanced stage. We describe a case that was diagnosed after a presentation to the emergency department for a traumatic injury of the affected area.

Initial presentations of malignant disease and its complications form a relatively low proportion of the caseload of emergency doctors. In this case, a patient presented after a minor injury that had failed to recover; subsequent investigation of this injury led to the diagnosis of subungual malignant melanoma in an otherwise asymptomatic patient. This is a rare case which presented in an atypical fashion, with a confounding history of minor trauma. It is presented to highlight the differential diagnosis of destructive bone lesions.

A 63-year-old hospital-maintenance worker presented to the emergency department having struck his left little finger with a wrench two months previously. He had not sought medical advice at the time of the injury. When he presented, he stated that 10 days after the incident the finger had become sore and swollen, occasionally feeling hot. It had failed to improve until he decided to seek medical attention. There had been no history of any discharge from the site or of any breaks in the skin. He was otherwise fit and well. He had stopped smoking 18 months previously. His medical history included exposure to asbestos several years previously while working in a dockyard. He did not describe any systemic symptoms of disease on systems review.

Figure 1 x Ray of the shaft of the distal phalanx

On examination, he was well and had normal temperature. The distal phalanx of his left (non-dominant) finger was swollen (almost fluctuant) and erythematous, but did not feel warm to touch. There was no discharge. The finger was not tender.

An x ray showed complete destruction of the shaft of the distal phalanx with only a thin eggshell-like cortex remaining in parts (fig 1). Full blood count, levels of C reactive protein and erythrocyte sedimentation rate were normal.

At this stage, the diagnosis was unclear. The most probable possibilities were thought to be osteomyelitis or avascular necrosis. He was referred for a hand-surgical opinion.

After referral, he was treated by surgical exploration of the affected digit. At operation, the cavity of the phalanx was curetted and a soft gel-like material was recovered. Histological examination showed malignant melanoma. Two months later, the swelling of the finger had increased and pigmentation had developed around the edges of the nail bed. This was thought to represent a primary subungual melanoma (confirmed at histological analysis with a Clark's level 5, Breslow thickness was 13 mm). A whole-body examination did not show any primary pigmented lesions. A computed tomography scan showed pulmonary nodules and widespread skeletal metastases. He went on to develop a pre-cricoid nodule that was found to be a secondary deposit of malignant melanoma.

This patient has been diagnosed with disseminated poorly-differentiated malignant melanoma. He is being treated with a single-agent dacarbazine chemotherapy, and remains well having undergone his third cycle. Response to this agent is found to be of the order of 20%.

DISCUSSION

We present this case to raise the levels of suspicion in emergency doctors when faced with unexpected or unexplained bone destruction on radiographs. Metastatic destruction of bone must be considered by the doctor when faced with such appearances. Malignant disease and its complications are often seen in the emergency department. Non-specific lesions, paraneoplastic syndromes and premonitory symptoms are among the more difficult presentations. In this case, the diagnosis was made after a presentation with a minor injury which, after investigation, was found to overlie a far more serious condition. The patient may have benefited from this early detection; histological results from the curettage of the finger was available before the nail went on to show appearances of melanoma.

The radiological differential diagnosis includes osteomyelitis, granuloma, post-traumatic osteolysis and inclusion dermoid.

Acral lentiginous (subungual) malignant melanomas are a rare form of malignant melanoma (2–8% of cases in Caucasian skin types, 29–72% in dark-skinned individuals), and typically manifest very late. In a study on subungual melanomas, finger nails were affected in 62% of the subjects and toe nails in 38%. The thumb and great toe nails were affected in 73% of the subjects.¹ Other studies also confirm the great toes, followed by thumb, as the most common sites of involvement – hence we can consider this to be a rare presentation.

The destruction of bone in this case is probably a result of local invasion from the primary tumour. Bony metastases are most common from primary tumours of breast, bronchus, kidney, prostate and thyroid. The most common sites are those of persistent red marrow: skull, ribs, vertebrae, pelvis and proximal humerus and femur.² They can be blastic or lytic in nature. Metastases to the hand are rare, with <200 cases reported in the literature.³ Phalanges are more commonly involved compared with the metacarpal and wrist. The lung, breast and kidney are more common sites of primary lesions that metastasise in the hand.

Thoracic metastases of malignant melanoma predict a grave prognosis, with miliary metastasis and bone destruction being the most severe end of the spectrum. Solitary lung nodules confer the greatest chance of a good outcome to treatment.⁴

In our patient, the diagnosis was reached after surgical exploration of a destructive bone lesion thought to be secondary to trauma. Malignancy should always be considered as part of the differential diagnosis of destructive bone lesions.

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REFERENCES

- 1 **Kato T**, Suetake T, Sugiyama Y, *et al*. Epidemiology and prognosis of subungual melanoma in 34 Japanese patients. *Br J Dermatol* 1996;**134**:383–7.
- 2 **Blackburn P**. Visual diagnosis of hematologic and oncologic diseases. *Emerg Med Clin North Am* 1993;**11**:273–335.
- 3 **Tomas X**, Conill C, Combalia A, *et al*. Malignant melanoma with metastasis into the capitate. *Eur J Radiol* 2005;**56**:362–4.
- 4 **J T Chen**, **N S Dahmash**, **C E Ravin**. Metastatic melanoma in the thorax: report of 130 patients. *Am J Roentgenol* 1981;**137**:293–8.